



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

AREA
FORMAZIONE E DOTTORATO

PHD PROGRAMME TABLE 40TH CYCLE

Section “Available Positions and Scholarships” integrated on 27/05/2024

PROGRAMME’S NAME	ASTROPHYSICS
ASSOCIATED PARTNERS Pursuant to art. 3 para 2 lett. b) of the M.D. n. 226/2021	Istituto Nazionale di Fisica Nucleare - INFN
DURATION	3 years
PROGRAMME START DATE	01/11/2024 (DD/MM/YYYY)
LANGUAGES	English
COORDINATOR	Prof. Andrea Miglio (andrea.miglio@unibo.it)
PhD POSITIONS	17
ADMISSION PROCEDURE	Qualifications evaluation Oral examination

Available Positions and Scholarships

Pos. n.	Financial Support	Description	Positions linked to research topics
1	PhD scholarship	Totally funded by the University of Bologna general budget	Research topic must be selected among the subjects described in DiFA PhD Projects 40 , available at the webpage 2024 Call - fellowships and projects
2	PhD scholarship	Totally funded by the University of Bologna general budget	Research topic must be selected among the subjects described in DiFA PhD Projects 40 , available at the webpage 2024 Call - fellowships and projects
3	PhD scholarship	Totally funded by the University of Bologna general budget	Research topic must be selected among the subjects described in DiFA PhD Projects 40 , available at the webpage 2024 Call - fellowships and projects
4	PhD scholarship	Totally funded by the University of Bologna general budget	Research topic must be selected among the subjects described in DiFA PhD Projects 40 , available at the webpage 2024 Call - fellowships and projects
5	PhD scholarship	Totally funded by the University of Bologna general budget	Research topic must be selected among the subjects described in DiFA PhD Projects 40 , available at the webpage 2024 Call - fellowships and projects
6	PhD scholarship	Funded by the Department Physics and Astronomy with funds made available by the project RED CARDINAL “Unveiling the Formation of Massive Galaxies with the James Webb Space Telescope” - GA	Observations of cold gas outflows in massive galaxies

		101076080 (Ref. Prof. Sirio Belli) CUP: J33C21000420006	
7	PhD scholarship	Funded by the Department Physics and Astronomy with funds made available by the project ECOGAL "Understanding our Galactic ecosystem: From the disk of the Milky Way to the formation sites of stars and planets" (GA n° 855130) - Ref. Prof. Testi - CUP J33C19000040006	Constraining the physics of planet formation with ALMA and NOEMA
8	PhD scholarship	Funded by the Department Physics and Astronomy with funds made available by the project ECOGAL "Understanding our Galactic ecosystem: From the disk of the Milky Way to the formation sites of stars and planets" (GA n° 855130) - Ref. Prof. Testi - CUP: J33C19000040006	Detection and properties of young exoplanets using the VLT
9	PhD scholarship	Funded by INAF - Istituto Nazionale di Astrofisica	Galaxies and cosmology, stars, stellar populations and the interstellar medium, relativistic and particle astrophysics, advanced technologies and instrumentation (the research topic must be selected among the subjects described in INAF1 OAS available at the webpage 2024 Call - fellowships and projects)
10	PhD scholarship	Funded by INAF - Istituto Nazionale di Astrofisica	Galaxies and cosmology, stars, stellar populations and the interstellar medium, relativistic and particle astrophysics, advanced technologies and instrumentation (the research topic must be selected among the subjects described in INAF2 IRA available at the webpage 2024 Call - fellowships and projects)
11	PhD scholarship	Funded by INAF - Istituto Nazionale di Astrofisica	Galaxies and cosmology, stars, stellar populations and the interstellar medium, relativistic and particle astrophysics, advanced technologies and instrumentation (the research topic must be selected among the subjects described in INAF3 IRA available at the webpage 2024 Call - fellowships and projects)
12	PhD scholarship	Funded by INAF - IRA - Istituto di Radioastronomia	Exploitation of LOFAR and MeerKAT data at low and ultra-low frequencies (<100 MHz or several metre wavelength) to study galaxy clusters and the emission from radio sources in that environment
13	PhD scholarship	Funded by INAF - IRA - Istituto di Radioastronomia	Exploitation of the wide archive of the Blazar Monitoring Program, together with other available interferometric data (e.g., ALMA, EHT, EVN), for a deeper understanding of the blazars' physics through the analysis of their multifrequency variability

14	<i>PhD scholarship</i>	Funded by INAF - IRA - Istituto di Radioastronomia	Study of Fast Radio Bursts (FRBs) through radio observation campaigns using the Northern Cross, Medicina, SRT, Noto, and the CHORD radio telescopes (at frequencies of 408 MHz, 1.4 GHz, and 5 GHz)
15	<i>PhD scholarship</i>	Funded by INAF - IRA - Istituto di Radioastronomia	Preparation of observations of the 21 cm line emitted from neutral Hydrogen, with the Square Kilometre Array, to characterize the Epoch of Reionization and the Cosmic Dawn
16	<i>PhD scholarship</i>	Funded by INAF - Osservatorio di Astrofisica e Scienza dello Spazio - Bologna	Characterization of the instrumental residual astigmatism and distortions for weak and strong lensing observations, from the Vera C. Rubin Observatory to the new generation of Extremely Large Telescopes
17	<i>PhD scholarship</i>	Funded by INAF - Osservatorio di Astrofisica e Scienza dello Spazio - Bologna	Quasars at the cosmic dawn in the ALMA and JWST era

The number of positions and scholarships may be incremented in case additional funding becomes available, notwithstanding the terms of the application process in the Call. Any amendment, update or integration of the Programme Table will be published on the University website, even after the Call for applications has expired. Any further PhD positions shall be integrated in the PhD Programme Table within ten days before the oral examination.

All PhD positions winners shall fulfill the learning and research obligations decided by the Academic Board and the obligations foreseen in the relevant regulations, funding schemes and eventual agreements, and in the Call for Applications.

Admission Exams

	DATE AND TIME	RESULTS
Qualifications evaluation	Applicants' participation is not required	Available from 28/06/2024
Oral examination	Date: starting from 08/07/2024 – 8.30 a.m. CEST Place: In presence, Department of Physics and Astronomy, Via Gobetti 93, Bologna. Remotely, using Microsoft Teams	Available from 17/07/2024

The results of the qualifications and research proposal evaluation shall be available on the webpage [Studenti Online](#) (select “summary of the requests in progress” > “see detail” and open the .pdf file at the bottom of the page) together with the oral examination detailed schedule. **No personal written communication will be sent to applicants concerning the examinations results.**

During the oral examination, applicants may express their interest in one or more positions linked to specific research topics.

Required and Supporting Documents to be attached to the application

All the documents listed below **shall be drawn up in English or in Italian**. In case of documents originally issued in any other language (e.g. identity document, qualifications), an official translation is required.

Only qualifications obtained **during the last 5 calendar years** shall be taken into consideration, except for the University Degree. The Admission Board will assess the relevance of the supporting documents to the PhD Programme.

REQUIRED DOCUMENTS	
Identity document	Valid identity document with photo (i.e. identity card, passport)
Curriculum Vitae	No specific CV format is required

Degrees	Documents attesting the awarding of the first and second cycle degrees, the exams taken and the marks obtained (see Art. 3 of the Call for Applications)
SUPPORTING DOCUMENTS	
Thesis abstract	Abstract of the second cycle degree thesis . Graduands applicants may submit the draft of the thesis. Abstracts cannot exceed 5,000 characters, including spaces and formula possibly used. The above figure does not include: the title of the thesis, the outline, references, and images such as graphs, diagrams, tables etc.
Reference letter/s	No more than 2 reference letters signed by Italian and international academics and professionals in the research field, which do not form part of the Admission Board, attesting the suitability of the applicant and his/her interest in the scientific research. Letters shall be uploaded following the procedure on Studenti Online , detailed in the Call for Applications (Art. 3.2).
Publications	Lists of publications (i.e. monographs, articles on scientific journals)
Other documents	<ul style="list-style-type: none"> - Research activity of any kind - whether basic, applied, translational, etc. - carried out in any capacity, including when covered by research grants, and as a staff member of research projects - Curricular and non-curricular training internships - Documents attesting the knowledge of foreign languages - Study periods completed by applicants outside their countries of origin (e.g. Erasmus programme or other similar mobility programmes) - Other qualifications attesting the suitability of the applicants (scholarships, prizes, etc.)

Evaluation criteria*

Scores will be expressed in points out of 100, as follows.

1. Qualifications evaluation

Minimum score for admission to the oral examination: 30 points, Maximum score: 50 points

First (Bachelor's) and Second cycle degree (Master's) final mark. Graduands shall be evaluated according to the Weighted Average Mark (WAM)	30 points max
Publications	2 points max
Curriculum Vitae evaluation (e.g. thesis abstract, reference letters, other qualifications)	18 points max

2. Oral examination

Minimum score for eligibility: 30 points, Maximum score 50 points

General knowledge of the PhD programme's main research topics and of the research topics linked to the available PhD positions	50 points max
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Oral examination aims to assess the suitability of the applicant for scientific research as well as the general knowledge of the PhD programme's main research topics and of the research topics linked to the available PhD positions. During the oral examination, the applicant's English proficiency shall be assessed.

The oral examination is carried out in Italian or English.

* Possible further evaluation criteria will be available on the [University website](#), selecting the relevant PhD Programme > "More information".